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Appl. No. 09/646,568
Atty. Ref.: 117-319
Amendment
September 15, 2011

AMENDMENTS TO THE CLAIMS:

Please amend the claims as follows:

Claims 1-49. (Canceled)

50. (Currently Amended) An expression vector which comprises:

(a) a polynucleotide comprising the entire nucleotide sequence set out in SEQ ID NO. 1 or the complement thereof; or

(b) ~~a polynucleotide comprising a polynucleotide sequence which is degenerate as a result of the genetic code to the polynucleotide of SEQ ID NO. 1; or~~

(c)—a polynucleotide that encodes a polypeptide that comprises:

(i) the sequence set out in SEQ ID NO: 2;

(ii) the polypeptide encoded by nucleotides 210-1335 of SEQ ID NO:

1;

(iii) amino acids 158-211 of SEQ ID NO: 2; or

(iv) amino acids 380-444 of SEQ ID NO: 2,

wherein said polypeptide has the ability to stimulate an immune response against the polypeptide of SEQ ID NO: 2;

operably linked to regulatory sequences capable of directing expression of said polynucleotide in a host cell.

51. (Previously Presented) A vector according to claim 50 which is a plasmid or viral vector and wherein said polynucleotide is under control of a promoter.

52. (Previously Presented) A plasmid according to claim 51, wherein the promoter is a CMV, MMLV, RSV or SV40 promoter.

Claims 53-59. (Canceled)

60. (Currently Amended) An isolated non-pathogenic microorganism or a cell isolated from a human or animal species prone to infection by *Mycobacterium avium* subspecies *paratuberculosis* (MAP) which has been transformed or transfected with a nucleic acid construct comprising a polynucleotide selected from:

- (a) a polynucleotide comprising the entire nucleotide sequence set out in SEQ ID NO: 1 or the complement thereof; or
- (b) ~~a polynucleotide comprising a polynucleotide sequence which is degenerate as a result of the genetic code to the polynucleotide of SEQ ID NO: 1; or~~
- (c) —a polynucleotide which encodes a polypeptide comprising:
 - (i) the sequence set out in SEQ ID NO: 2;
 - (ii) the polypeptide encoded by nucleotides 210-1335 of SEQ ID NO: 1;
 - (iii) amino acids 158-211 of SEQ ID NO: 2; or
 - (iv) amino acids 380-444 of SEQ ID NO: 2;

wherein said polypeptide has the ability to stimulate an immune response against the polypeptide of SEQ ID NO: 2,

or a vector as defined in claim 51.

61. (Previously Presented) An isolated non-pathogenic microorganism according to claim 60 which is a recombinant bacterium or virus.

62. (Previously Presented) An isolated non-pathogenic microorganism or a cell according to claim 60, wherein the nucleic acid construct further comprises a polynucleotide which encodes the polypeptides of the GS region of MAP.

63. (Previously Presented) An isolated non-pathogenic microorganism or a cell according to claim 60, wherein the gene or genes present in the nucleic acid construct are expressed.

Claims 64-73 (Canceled)

74. (Currently Amended) An isolated polynucleotide selected from:

- (a) a polynucleotide comprising the entire nucleotide sequence set out in SEQ ID No. 1 or the complement thereof; or
- (b) a polynucleotide comprising a polynucleotide sequence which is degenerate as a result of the genetic code to the polynucleotide of SEQ ID No. 1; or
- (c)—a polynucleotide which encodes the polypeptide of SEQ ID NO: 2, wherein said polynucleotide encodes a polypeptide that has the ability to stimulate an immune response against the polypeptide of SEQ ID NO: 2.